

Summer 2016 Outlook

Winter 2016-17 Preview

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National Weather Service

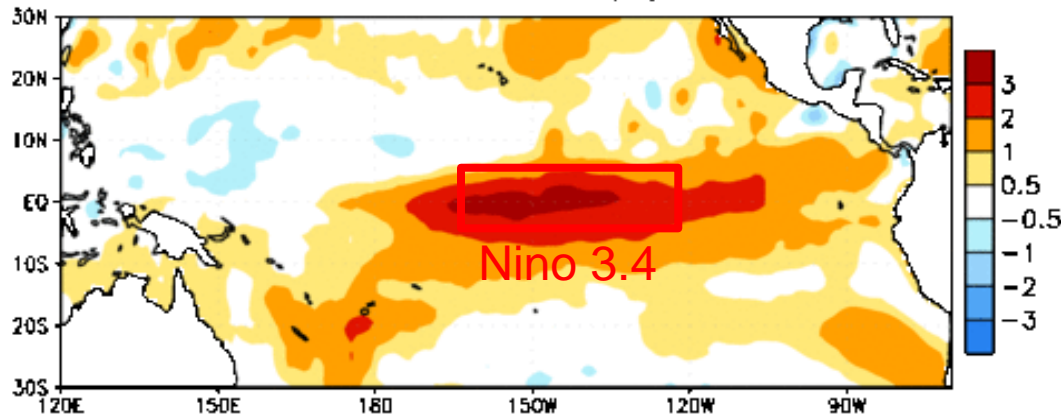
Phoenix, AZ

www.weather.gov/phoenix



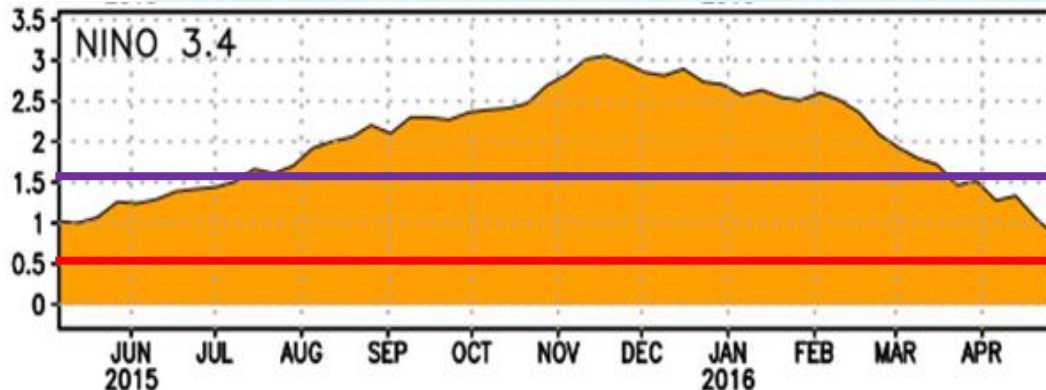
Tropical Pacific Conditions

Week centered on 10 FEB 2016
SST Anomalies (°C)



Central equatorial Pacific waters have been extremely warm since late summer 2015 (strong El Nino)

Substantial cooling has occurred in the past couple months, though El Nino conditions persist

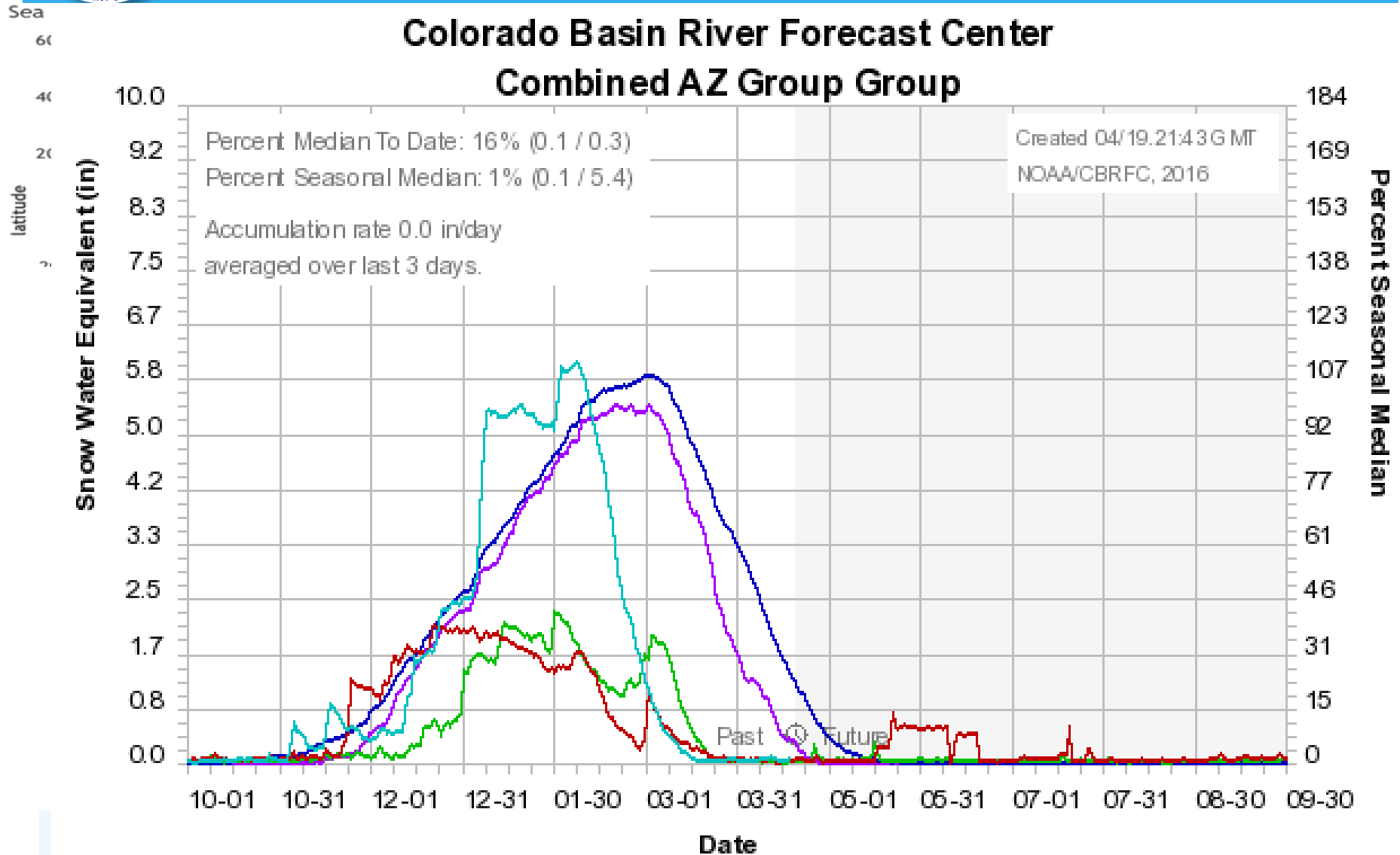


El Nino will wane through the spring becoming neutral during the summer



Different El Nino Flavors

Colorado Basin River Forecast Center Combined AZ Group Group





Influences on SW Monsoon

Position and persistence of subtropical High pressure

- Dictates steering of moisture and disturbances into Arizona
- Antecedent seasonal snow cover and drought can aid in stronger or weaker high pressure development

El Nino/La Nina

- El Nino sometimes means later onset & drier monsoon seasons, vice-versa for La Nina. However, there are many conflicting signals and most summers are neutral and offer no influence.

Pacific Decadal Oscillation

- “Warm phase” when may hinder precipitation chances - especially early monsoon season, but correlations are very weak.

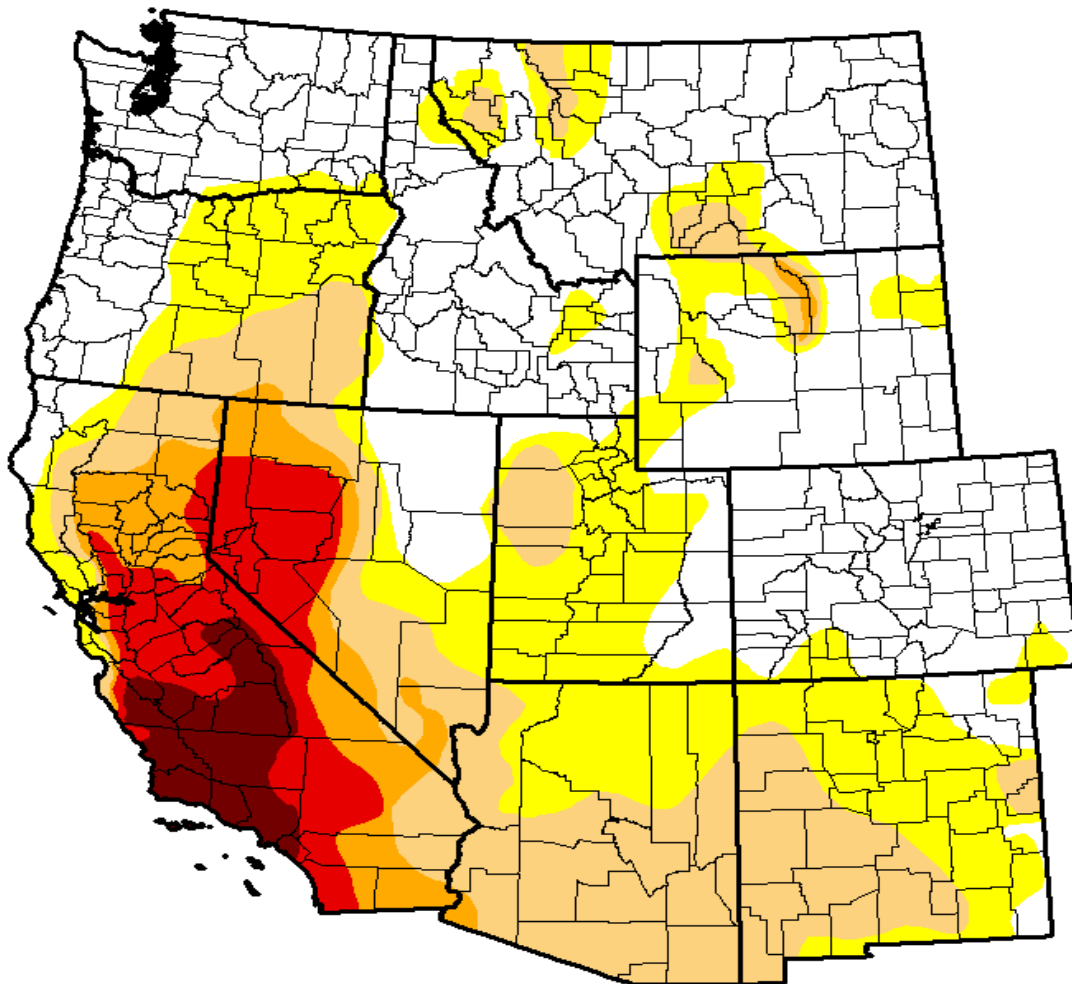
Trends

- Changing regional climate may be reflected in seasonal trends in monsoon rainfall. The recent trends may be a future signal predictor.



SW Monsoon High Pressure

May 3, 2016



Clockwise circulation around the sub-tropical high pressure pulls moisture north

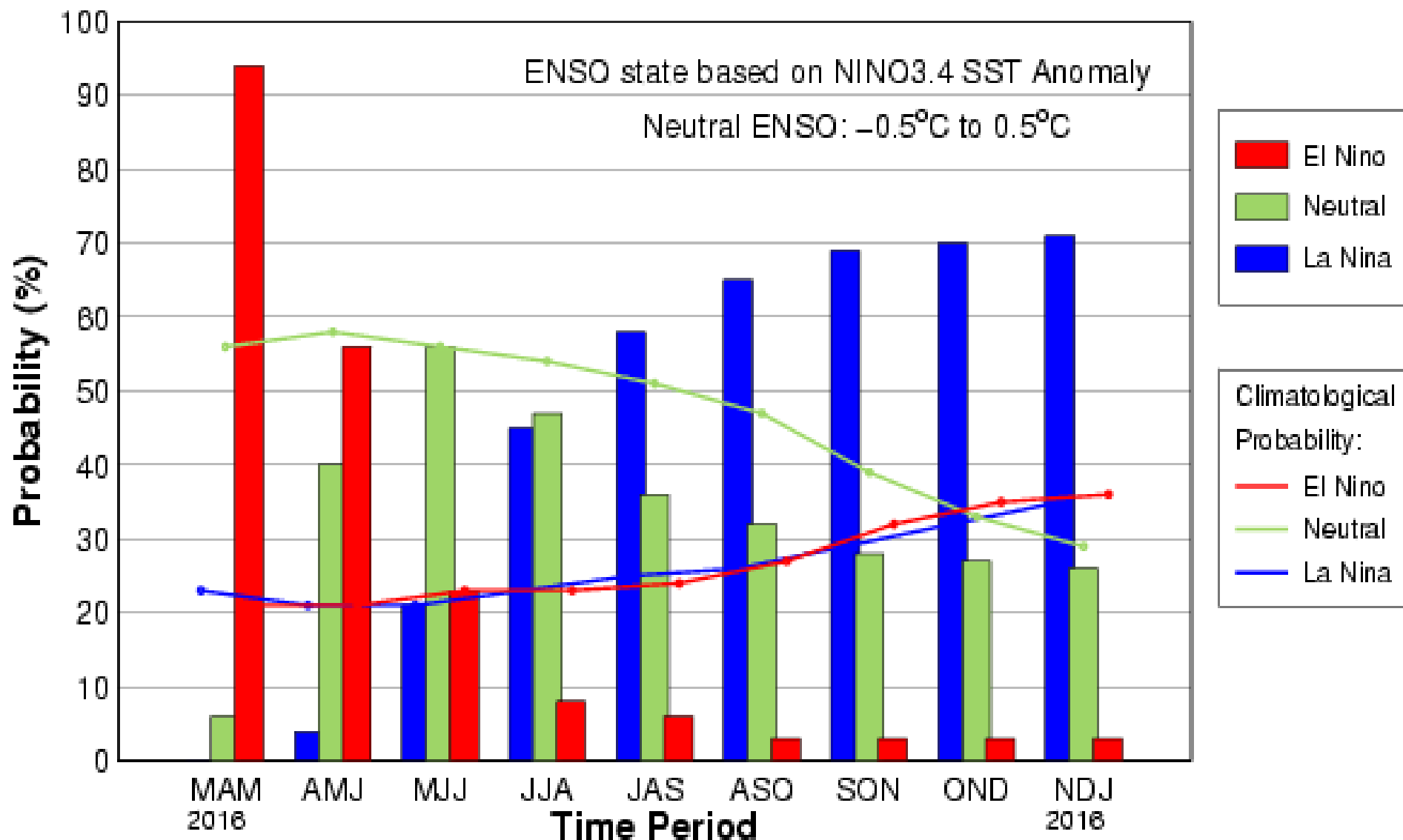
Inverse relationship between snow cover and preferred high pressure location

Areas of more intense drought can also be preferred set up for high pressure system



El Nino/La Nina Outlook

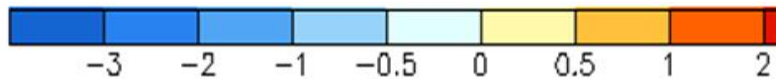
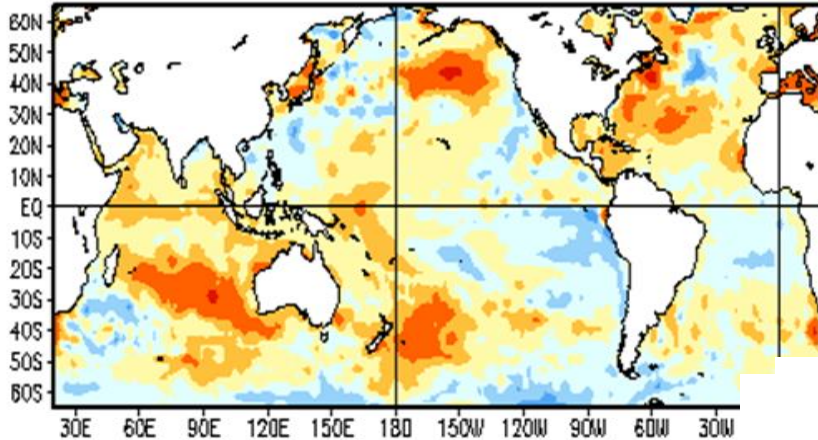
Early-Apr CPC/IRI Official Probabilistic ENSO Forecast





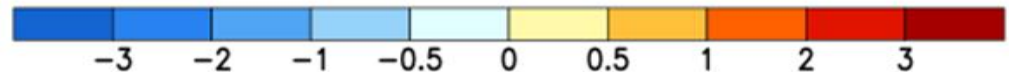
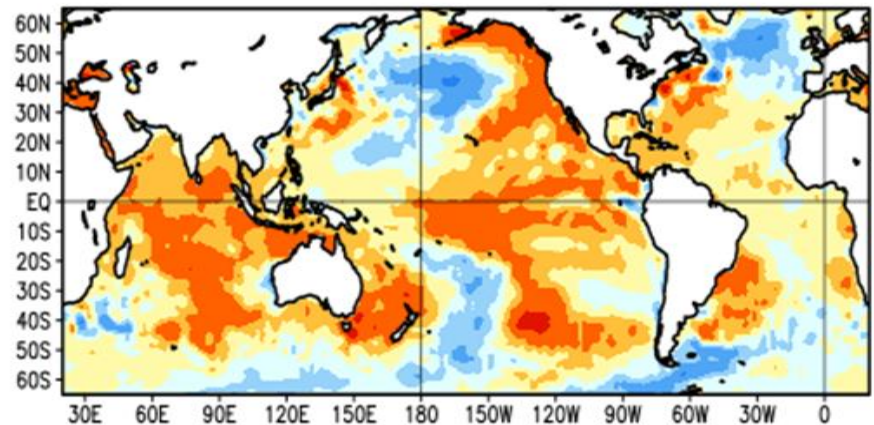
Latest Ocean Temperatures

Average SST Anomalies
27 OCT 2013 – 23 NOV 2013



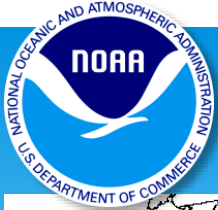
- * November 2013: Negative PDO
 - Colder than normal water hugging U.S. West coast
 - Warmer than normal water over North Central Pacific

Average SST Anomalies
3 APR 2016 – 30 APR 2016



April 2016: Still Positive PDO

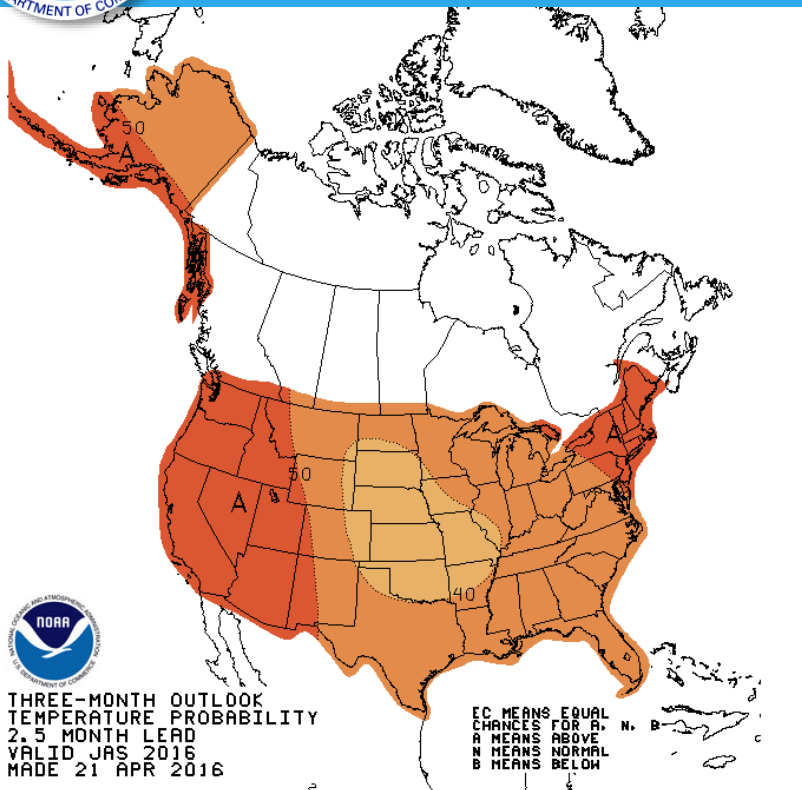
- Warmer than normal water hugging U.S. West coast
- Colder than normal water over the Central Pacific



Outlook: Jul/Aug/Sep 2016

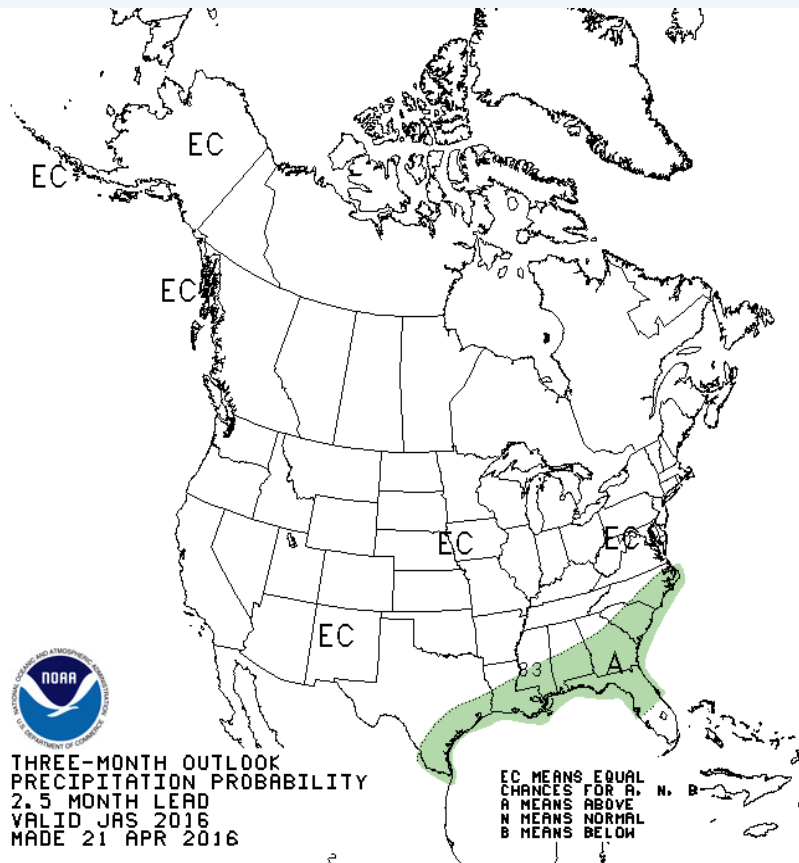
Three-month averages

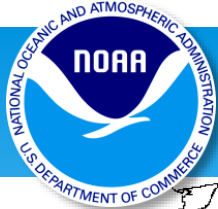
Shading indicates chances of above or below normal



Much better odds for above
normal temperatures

Equal chances for above, below
or near average precipitation

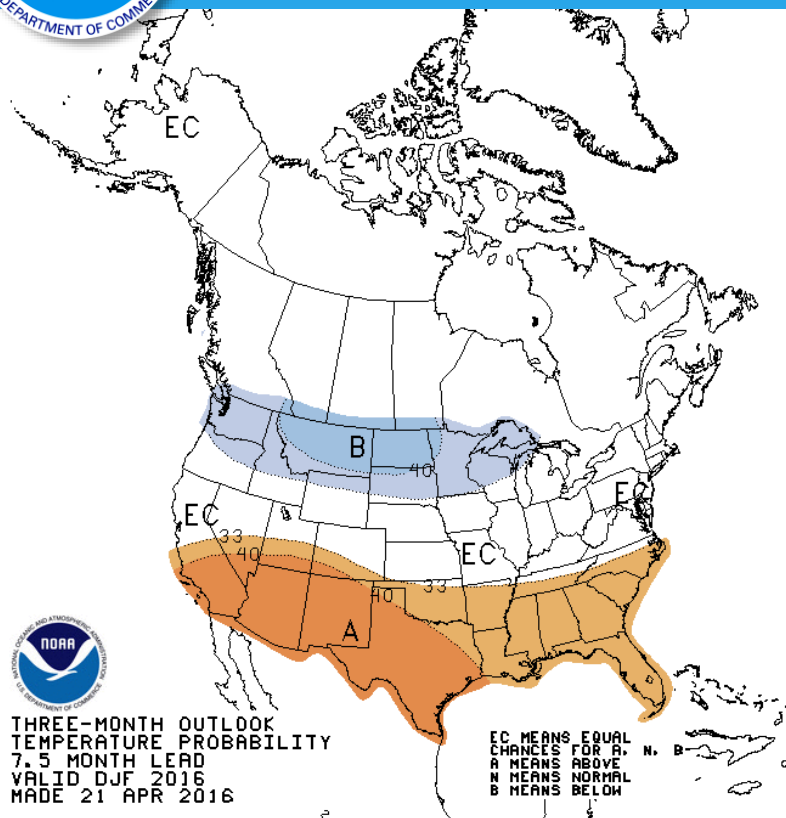




Outlook: Dec/Jan/Feb 2016-17

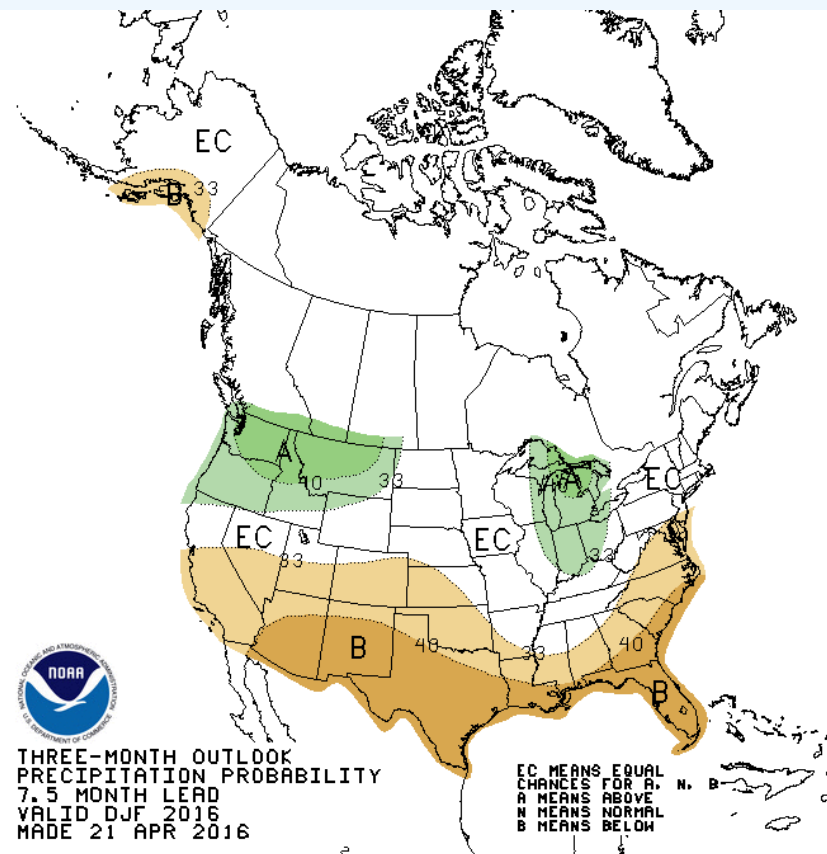
Three-month averages

Shading indicates chances of above or below normal



Better odds of above normal
temperatures

Better odds of below normal
precipitation





Summary

El Nino conditions will decay through the summer eventually becoming neutral and providing little to no influence on our monsoon.

Mixed signals exists with respect to snow cover, drought, and east Pacific sea surface temperatures. No tilt in odds towards above or below normal Pacific hurricane activity.

At least a 70% chance La Nina conditions develop by late fall and winter. Low confidence on strength, but odds slightly favor warmer and drier this winter.

Trends and climate change across our region may have the biggest impact on seasonal weather through the summer monsoon and next winter



Questions? Contact us!

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